

Syllabus - MATH 2400

Applied Graph Theory

Fall 2011

Instructor: Dr. M. Davidson
431 Machray Hall
474 8090
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Office Hours:

Monday, Wednesday, & Thursday 9:00 - 10:00 ;

Lectures:

225 St. Paul's
12:30–1:20 Monday, Wednesday, & Friday

Textbook: Joan M. Aldous and Robin J Wilson, *Graphs and Applications, an introductory approach*, Springer, 2000

Tentative Topics:

- ★ **Chapter 1:** Introduction to graphs, digraphs, networks
- ★ **Chapter 2:** graphs, subgraphs, degrees, paths, cycles, regular, bipartite, four cubes problem
- ★ **Chapter 3:** Eulerian graphs, Hamiltonian graphs, knight's tour, Gray codes
- ★ **Chapter 4:** Digraphs, rotating drum, tournaments
- ★ **Chapter 5:** Adjacency Matrices, walks, incidence matrices
- ★ **Chapter 6 & 7:** Trees, spanning trees, rooted trees, labelled trees, binary trees, chemical trees
- ★ **Chapter 8 & 9:** Algorithms, traveling salesman problem, shortest path algorithm, longest path algorithm, scheduling
- ★ **Chapter 10:** (as time permits, selected topics) Path and Connectivity, Menger's Theorem
- ★ **Chapter 11:** Planarity, Euler's Formula, Kuratowski's Theorem
- ★ **Chapter 12 & 13:** (as time permits, selected topics) Vertex colourings, edge colourings

Evaluation of Student Performance:

Participation	5 %	classroom discussions, discussion of homework, attendance.
Midterm Tests	45%	Two test, written in class
Final Examination	50%	(3 hours) - to be scheduled

Midterm Tests: There will be midterms in class on:
Friday, October 14th and Wednesday November 9th
Your best Midterm score will count for 25% of your grade, the other will count for 20%.

Website:

<http://home.cc.umanitoba.ca/~davidsom/>

Notes:

- ◇ The Voluntary Withdrawal Deadline is Wednesday, November 16th.
- ◇ No Class Days: Monday October 10th (Thanksgiving) and Friday November 11th (Remembrance day)
- ◇ Note that past examinations are to be used for practice only: there is no guarantee that your examinations in this course will in any way be similar.
- ◇ If you miss the midterm, you will be assigned a grade of 'zero' unless reasons and acceptable supporting evidence are provided.
- ◇ Calculators will NOT be permitted during midterms or final exam.
- ◇ Attendance will be taken (occasionally) by sign-in sheet. It is an act of academic dishonesty to sign-in any name other than your own.

Faculty of Science Statement on Academic Dishonesty

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline ByLaw, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline ByLaw may be accessed at:

http://umanitoba.ca/admin/governance/governing_documents/students/868.htm

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science webpage:

http://umanitoba.ca/faculties/science/resources/Discipline_Penalties_Table_Jul09.pdf

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.